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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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 EXAMINER

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| ART UNIT | PAPER NUMBER |
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23
DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

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|------------------------------|--------------------|----------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 08/935,365 | ROBERTS ET AL. |
| | Examiner | Art Unit |
| | Marianne S. Ocampo | 1723 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

1) Responsive to communication(s) filed on 18 August 2000.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-28 is/are pending in the application.

4a) Of the above claim(s) 8-17 and 20-27 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-7, 18, 19 and 28 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are objected to by the Examiner.

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) All b) Some * c) None of the CERTIFIED copies of the priority documents have been:

1. received.

2. received in Application No. (Series Code / Serial Number) _____.

3. received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

15) Notice of References Cited (PTO-892)

16) Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

18) Interview Summary (PTO-413) Paper No(s) _____.

19) Notice of Informal Patent Application (PTO-152)

20) Other: _____.

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DETAILED ACTION

Reopening of Prosecution after Appeal Brief

1. In view of the appeal brief filed on 8-18-00, PROSECUTION IS HEREBY REOPENED.

New grounds of rejections are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (a) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (b) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Status of the Claims

2. Claims 1 – 7, 18 – 19 and 28 are pending. Claims 8 – 17 and 20 – 27 had been withdrawn from consideration.

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Defects of Appeal Brief

3. The appeal brief filed on 8-18-00 is defective because the cover page of brief does not have the correct application number on the three copies of the appeal brief. The correct application number should have been 08/935,365, and not 09/935,365.

Claim Rejections - 35 USC § 112

4. The previous rejection of claim 1 based on 35 U.S.C. § 112, 2nd paragraph is hereby also withdrawn, in view of the arguments filed with the brief on 8-18-00.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 4 recites the limitation "the underdrain block extends the length of the filter media bed". Since it has been established that the invention being claimed in the independent claim 1, of which claim 4 depends therefrom, is a subcombination in the form of an underdrain block, and does not positively recite the limitation of a filter media bed, the limitation of a filter media bed in claim 4 lacks antecedent basis, and thus, making this claim indefinite.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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7. ^{Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Roberts (U.S. 4,619,765).}

Roberts (765) discloses an underdrain block (12) for supporting a filter media bed in a liquid filtration system, comprising an upper wall (40, 44), a pair of side walls (52) and a lower wall, at least one lateral member (partitions, 18, 24) within the underdrain block (12) between the upper wall (40) and the lower wall, at least two chambers (20 & 22, 26 & 28) within the underdrain block and defined by the lateral member (18, 24), and further comprising a plurality of orifices (42) in the upper wall of the block (12), and a plurality of internal orifices (36) in at least the lateral (horizontal) member (18), wherein the underdrain block (12) is jointless and extends substantially the length of a filter media being supported thereby, as in figs. 2 – 3 and cols. 3 – 4 (claim 1). Lastly, Roberts discloses the internal orifices (36) extending in the same direction as the orifices (42) in the upper wall of the underdrain block (12), as in figs. 2 – 3 (claim 5).

8. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as also being anticipated by Berkebile et al. (U.S. 5,108,627).

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Berkebile et al. (627) disclose an underdrain block (10) for supporting a filter media bed in a liquid filtration system, comprising an upper wall (12), a pair of side walls (16) and a lower wall, at least one lateral member (partitions, 24 & 26, 32 & 34) within the underdrain block (10) between the upper wall (12) and the lower wall, at least two chambers (28 & 30, 36, 38 & 40) within the underdrain block and defined by the lateral members (24, 26, 32, 34), as in figs. 2 - 3. Berkebile et al. also disclose the block further comprising a plurality of orifices (14) in the upper wall of the block (10), and a plurality of internal orifices (48, 50 & 33, 35) in at least the lateral member (24 & 32, 34, respectively), wherein the underdrain block (10) is jointless (up to a desired length upon extrusion) and extends substantially the length of a filter media being supported thereby, as in figs. 2 - 3 and cols. 5 - 8 (claim 1). Furthermore, Berkebile et al. disclose the internal orifices (48, 50) extending in the same direction as the orifices (14) in the upper wall (12) of the underdrain block (10), as in figs. 1 - 3 (claim 5).

9. Claims 1 - 5 are rejected under 35 U.S.C. 102(b) as also being anticipated by Brown et al. (U.S. 5,489,388).

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Brown et al. (388) disclose an underdrain block (146) for supporting a filter media bed in a liquid filtration system, comprising an upper wall (148), a pair of side walls (152) and a lower wall (150), at least one lateral member (internal walls, 154) within the underdrain block (146) between the upper wall (148) and the lower wall (150), at least two chambers (156 & 158) within the underdrain block and defined by the lateral member (154), as in figs. 11 - 12. Brown et al. also disclose the block further comprising a plurality of orifices (164) in the upper wall (148) of the block (146), and a plurality of internal orifices in the lateral members (in both transverse and vertical internal walls, 154), wherein the underdrain block (146) is jointless (at least up to a length of 4 feet) and extends substantially the length of a filter media being supported thereby, as in figs. 11 - 12 and cols. 9 - 10 (claim 1). Note that the examiner has considered that the filter media being supported by the underdrain block having a length of at least up to 4 feet.

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Brown et al. also disclose one conduit (26) in the lower wall for an effluent to flow out of the underdrain block and for water and air to flow into the underdrain and up towards the filter media bed, comprising a passageway between an end of at least one chamber (158) and a wall sleeve (20), wherein the wall sleeve (20) providing the conduit (26), as in figs. 1 and 11 and cols. 4 – 6 and 9 – 10 (claims 2 - 3). It is inherent that upon supporting a liquid filtration system having a filter media bed having a length of at least up to 4 feet (as mentioned above), that the underdrain of Brown et al. (388) would be extending the length of that filter media bed (claim 4). Lastly, Brown et al. disclose the internal orifices formed in the transverse (horizontal) lateral member (154) of the block (146) extending in the same direction as the orifices (169) formed in the upper wall (148), as in figs. 11 – 12 (claim 5).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103[©] and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 6 - 7 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. (U.S. 5,489,388) in view of Roberts (U.S. 4,619,765) or Berkebile et al. (627).

Brown et al. (388) have been expanded above. Although Brown does not disclose the underdrain block being "jointless" and having a longitudinal length of at least 10 feet (as in claim 6), and/or, at least 20 feet (as in claim 7), and lastly, at least 5 feet (as in claim 28), it is well-known in the art and obvious that underdrain blocks (having short or long lengths) may be manufactured without joints (jointless) up to certain desired lengths by the manufacturer, such as the lengths of 5 feet, 10 feet, 20 feet or longer, depending on the size of a liquid filtration system and/or the filter media used by the filtration system, and the amount of fluid to be processed by the filtration system. In other words, the size (such as the length) of the filter media bed, depends on its capacity to process certain amount of fluids at a time, as well as on the time it is

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required for processing the fluid, which means that the larger the amount of fluid to be processed, the larger or extensive the filter media bed must be made. Therefore, in this instance, longer or larger underdrain blocks are required to support such longer or larger filter media beds. It is known in the art and considered an obvious modification to manufacture or extrude underdrain blocks in various lengths and sizes, including those longer than 4 feet long, such as those of 5 feet, 10 feet or 20 feet, so that one underdrain block completely supports the entire length of the filter media bed it is supporting, depending on the user's requirements and type of filtration application, such that if the filter media bed required by the filtration process is at least about 5 feet, 10 feet or 20 feet, the underdrain blocks could be extruded up to those lengths to completely support the filter bed without requiring the use of joints. Roberts (765) teach that underdrain blocks of 4 feet (typical length) had been made from longer (which are longer than 4 feet, which includes those lengths (5, 10 or 20 feet) mentioned above) single units of extruded blocks by cutting them into 4 feet lengths (col. 4, lines 36 – 42), in order to facilitate easier transport of those blocks to the filtration sites and arrange them in any configuration as the filtration space required. Alternatively, Berkebile et al. (627) teach underdrain blocks (10) could be extruded to form continuous lengths of filter block, which include those having a longitudinal lengths of 5 feet, 10 feet, and/or 20 feet, as in col. 7, lines 54 – 61 (claims 6 – 7 and 28). It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the length of the underdrain block of Brown et al. (388), by adding the teachings of Roberts (765) or Berkebile et al. (627), in order to form longer blocks necessary to support longer filter media beds of liquid filtration systems.

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12. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. (388) in view of Brown et al. (U.S. 5,269,920).

Brown et al. (388) have been expanded above. Brown et al. fail to disclose an underdrain block comprising three lateral members within said underdrain block, in which said three lateral members comprising two vertical lateral members and one horizontal lateral member, wherein said vertical lateral members dividing the interior of said underdrain blocks into three sections of approximately equal sizes, and said horizontal lateral member intersecting said vertical lateral members such that said horizontal lateral member further divides said interior into six chambers, which comprise of three upper chambers of approximately equal sizes, and three lower chambers, also of approximately equal sizes being located above and below said horizontal lateral member, respectively. Brown et al. (920) teach an underdrain block (16) comprising lateral members (internal walls, 40), wherein at least two of said lateral members (40) are vertical, at least 2 are substantially vertical (inclined) lateral members and one horizontal lateral member, as seen in figure 1. Brown et al. (920) teach the horizontal and vertical lateral members (internal walls, 40) dividing the interior of the underdrain block (16) into 6 chambers or conduits (42, 34), wherein three of said six chambers are upper chambers (34) above the horizontal lateral member (transverse wall), and the three other (lower) chambers (42) are below said horizontal lateral member, as seen in figure 1. As seen in fig. 1, the cross-sectional area of the upper chambers (34) are approximately (substantially, or greater than 50%) equal to one

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another, and the cross-sectional area of the lower chambers (42) are also approximately (substantially, or greater than 50%) equal to one another (claim 18). It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the underdrain block of Brown et al. (388) by adding the embodiments taught by Brown et al. (920) in order to provide a plurality of interconnecting chambers or conduits which evenly distributes and mixes the back washing water and air passing through the underdrain block prior to introduction to the filter media bed for an improved and even scouring and cleaning of the filter media, as stated in column 4, lines 37 - 45.

13. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berkebile et al. (627) in view of Brown et al. (920).

Berkebile et al. (627) have been expanded above. Berkebile et al. also disclose the underdrain block comprising three lateral members within said underdrain block, in which said three lateral members comprising at least two vertical lateral members (26, 32, 34) and one horizontal lateral member (24), wherein one of the vertical lateral members (26) extends straight from the lower wall towards the horizontal/transverse wall/lateral (24) to divide the interior of the block into two equal sized chambers below the horizontal lateral (24), and the other substantially vertical (inclined) lateral members (32, 34) divide the (upper) interior of the underdrain block into three sections/chambers of approximately equal (substantially, or greater than 50%) sizes, and the horizontal lateral member (24) intersecting said vertical lateral

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members, as in figs. 2 – 3. However, Berkebile et al. fail to disclose two vertical lateral members dividing the lower interior (below the horizontal member 24) of the block into three approximately equal chambers (as in claim 18). It is well known in the art of underdrain blocks having vertical lateral members dividing the interior of the blocks into 6 chambers, of which three upper chambers (above a horizontal lateral) are of approximately equal sizes, and three lower chambers (below the same horizontal lateral) are also of approximately equal sizes, as shown by Brown et al. (920). Brown et al. (920) teach an underdrain block (16) comprising lateral members (internal walls, 40), wherein at least two of said lateral members (40) are vertically straight dividing the lower interior of the underdrain block (16) into 3 chambers or conduits (42), as seen in figure 1. As seen in fig. 1, the cross-sectional area of the lower chambers (42) are also approximately (substantially, or greater than 50%) equal to one another (claim 18). It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the underdrain block of Berkebile et al. (627) by adding the second vertical lateral in the lower interior of the block as taught by Brown et al. (920) in order to provide additional chambers or conduits which evenly distributes and mixes the back washing water and air passing through the underdrain block prior to introduction to the filter media bed for an improved and even scouring and cleaning of the filter media, as stated in column 4, lines 37 - 45.

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14. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. (388) or Berkebile et al. (627) and Brown et al. (920), as applied to claim 18 above, and further in view of Eades et al. (U.S. 4,579,659).

Brown et al. (388), or Berkebile et al. (627), as modified by Brown et al. (920), have been expanded above. Brown et al. (388), as modified by Brown et al. (920), fail to disclose a plurality of air nozzles locate in each section of the underdrain, wherein each air nozzle is located at different lengths or points along the length of said underdrain, and furthermore, said air nozzle comprising a pipe having a closed end and an open end, wherein said open end is situated in said upper chamber substantially near said horizontal lateral member, and said pipe is extending from said lower wall of said underdrain through an internal orifice into said upper chamber, having a vertical slot proximate said closed end of said pipe and situated in the lower chamber substantially near said lower wall, and having a hole situated in said lower chamber substantially near said horizontal lateral member.

Eades et al. (659) teach a gravity filter including an underdrain (12) having a plurality of air nozzles (20) located in each section of said underdrain (12), wherein each nozzle (20) is located at different lengths or points along the length of said underdrain (12), as seen in figures 1 - 2. Eades et al. (659) teach each of said nozzles (20) comprising a pipe or tube sheet (21) having a closed end (34) and an open end (35), wherein said open end (35) is situated

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substantially near a horizontal lateral member (21), and having a plurality of slots (38) proximate said closed end (34). Although Eades et al. do not teach said slot (38) is vertical or horizontal, it is obvious and well known that the orientation of said slots (38) is arbitrary depending on the whim or design specification of the manufacturer of said air nozzle pipes. It is also well-known in the art that the location of said closed end and open end of air nozzle pipes can be below or above a horizontal lateral member of an underdrain assembly or block, in other words, said closed and open ends can be situated in the lower chamber and upper chamber, respectively, depending on the desired effect or distribution of air within said underdrain block (instant claim 19). It is considered that it would have been obvious to one of ordinary skill in the art to add the embodiments of the underdrain assembly taught by Eades et al. (659) to that underdrain block of Brown et al. (388), as modified by Brown et al. (920), in order to provide a uniform air flow distribution within said underdrain system, as stated in column 1, lines 56 - 59.

Response to Arguments in the Appeal Brief

15. In view of the arguments filed in the appeal brief on 8-18-00, the above rejections are set forth. The prosecution of this application had been reopened in order to clearly and more distinctively show the teachings of the prior art. Upon further consideration and review of the claims, new prior art had been found that still disclose, if not render obvious the claims of the invention. **This action is non-final.**

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne S. Ocampo, whose telephone number is (703) 305-1039. The examiner can normally be reached on Monday - Friday from approximately 7:00AM - 3:30PM.

17. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker, can be reached on (703) 308-0457.

18. The fax phone number for **Unofficial** faxes (i.e. faxes not to be entered, drafts) for Technology Center 1700 is **(703) 305-3602**. The fax number for **Official** faxes (i.e. faxes to become part of the file history) for this Center is **(703) 305-3599**. When filing a fax in Technology Center 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers.

19. Any inquiry of a general nature or relating to the status for this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

M. S. O.

November 6, 2000

W. L. Walker
W. L. WALKER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700